Amendments to the Claims

Claims 1-12 (cancelled).

Claim 13 (Currently amended). A circuit for reducing the crest factor of a data symbol to be transmitted in a multi-carrier data transmission system, the data symbol being a function of a plurality of signals provided within a predetermined time interval, each of the plurality of signals allocated to a carrier, each carrier occupying at least one frequency from a transmit data spectrum, at least one carrier being reserved which is not provided for data transmission, the circuit comprising:

a transmit path configured to receive the data symbol;

a model path arranged in parallel with a section of the transmit path the model path comprising,

a model filter configured to receive at least periodically the data symbol in non-oversampled format, the non-oversampled data symbol exhibiting a non-flat PSD power spectrum,

an analysis and evaluation circuit arranged following the model filter and configured to determine whether the time domain function of the non-oversampled data symbol, filtered by the model filter and exhibits within a predetermined time interval at least one maximum which exceeds a first threshold, and further configured to determine an associated position of the maximum within the time interval, and, by scaling and displacing a dirac-like sample function, to generate a correction function in dependence on the associated position and an amplitude of the maximum; and

a combining device which is connected to the model path and the transmit path, the combining device configured to subtract the correction function from the non-oversampled data symbol on the transmit path.

Claim 14 (Previously presented). The circuit according to claim 13, wherein the model path further comprises an oversampling device operably coupled to the model filter, and a bypass device configured to selectively bypass the oversampling device.

Claim 15 (Previously presented). The circuit according to claim 14, wherein the model path further comprises a switching device configured to selectively cause the bypass device to bypass the oversampling device.

Claim 16 (Previously presented). The circuit according to claim 14, wherein the oversampling device is configured to perform a two-fold oversampling of the data symbol.

Claim 17 (Previously presented). The circuit according to claim 14, wherein the model filter is configured to have filter coefficients that are identical for data symbols supplied to the model filter via the oversampling device and for data symbols supplied to the model filter via the bypass device.

Claim 18 (Previously presented). The circuit according to claim 17, wherein the model filter comprises a non-recursive filter which has a characteristic of a filter following the circuit for reducing the crest factor.

Claim 19 (Currently amended). A multi-mode modem for a multi-carrier data transmission system, which includes a circuit for reducing the crest factor of a data symbol to be transmitted in a multi-carrier data transmission system, the data symbol being a function of a plurality of signals provided within a predetermined time interval, each of the plurality of signals allocated to a carrier, each carrier occupying at least one frequency from a transmit data spectrum, at least one carrier being reserved which is not provided for the data transmission, the circuit comprising:

a transmit path configured to receive the data symbol;

a model path arranged in parallel with a section of the transmit path the model path comprising

a model filter configured to receive the data symbol in non-oversampled format,

an oversampling device operably coupled to an input of the model filter, and a

bypass device configured to selectively bypass the oversampling device.

an analysis and evaluation circuit arranged following the model filter and configured to determine whether the time domain function of the non-oversampled data symbol, filtered by the model filter and exhibits within a predetermined time interval at least one maximum which exceeds a first threshold, and further configured to determine an associated position of the maximum within the time interval, and, by scaling and displacing a dirac-like sample function, to generate a correction function in dependence on the associated position and an amplitude of the maximum; and

a combining device which is connected to the model path and the transmit path, the combining device configured to subtract the correction function from the non-oversampled data symbol on the transmit path; and

modem circuitry configured to transmit the corrected data symbol, which exhibits a power density spectrum according to a PSD mask both according to the ADSL standard and according to the ADSL+ standard.

Claim 20 (Currently amended). A method for reducing the crest factor of a data symbol to be transmitted using a circuit in a multi-carrier data transmission system, the data symbol being a function of a plurality of signals provided within a predetermined time interval, each of the plurality of signals allocated to a carrier, each carrier occupying at least one frequency from a transmit data spectrum, at least one carrier being reserved which is not provided for the data transmission, the circuit comprising

a transmit path configured to receive the data symbol,

a model path arranged in parallel with a section of the transmit path the model path comprising

a model filter configured to receive the data symbol,

an analysis and evaluation circuit arranged following the model filter and configured to determine whether the time domain function of the non-oversampled data symbol, filtered by the model filter and exhibits within a predetermined time interval at least one maximum which exceeds a first threshold, and further configured to determine an

associated position of the maximum within the time interval, and, by scaling and displacing a dirac-like sample function, to generate a correction function in dependence on the associated position and an amplitude of the maximum; and

a combining device which is connected to the model path and the transmit path, the combining device configured to subtract the correction function from the non-oversampled data symbol on the transmit path, the method comprising:

oversampling the data symbol two-fold and providing the oversampled data symbol to the model filter when the data symbol is part of an ADSL data transmission; and

providing data symbol in non-oversampled format to the model filter when the data symbol is part of an ADSL+ data transmission.

Claim 21 (Previously presented). A method according to claim 20, wherein filter operations of the model filter are performed with a single sampling rate for both oversampled data symbols and non-oversampled data symbols.

Claim 22 (Previously presented). A method according to claim 21, further comprising using correction functions of constant length for the data symbol that is part of the ADSL data transmission and for the data symbol that is part of the ADSL+ data transmission.

Claim 23 (Previously presented). A method according to claim 20, further comprising using correction functions of constant length for the data symbol that is part of the ADSL data transmission and for the data symbol that is part of the ADSL+ data transmission.

Claim 24 (Currently amended). A method for reducing the crest factor of a data symbol using a circuit in a multi-carrier data transmission system, the data symbol being a function of a plurality of signals provided within a predetermined time interval, each of the plurality of signals allocated to a carrier, each carrier occupying in each case at least one frequency from a transmit data spectrum, at least one carrier being reserved which is not provided for the data transmission, the circuit comprising

a transmit path configured to receive the data symbol,

a model path arranged in parallel with a section of the transmit path the model path comprising

a model filter configured to receive the data symbol,

an analysis and evaluation circuit arranged following the model filter and configured to determine whether the time domain function of the non-oversampled data symbol, filtered by the model filter and exhibits within a predetermined time interval at least one maximum which exceeds a first threshold, and further configured to determine an associated position of the maximum within the time interval, and, by scaling and displacing a dirac-like sample function, to generate a correction function in dependence on the associated position and an amplitude of the maximum; and

a combining device which is connected to the model path and the transmit path, the combining device configured to subtract the correction function from the non-oversampled data symbol on the transmit path,

the method comprising:

using L-fold oversampling of the data symbol on the model path,

storing, for the model path, only a single sample correction signal for reducing the crest factor; and

deriving a remaining L-1 sample correction signals using cyclic time displacement and scaling in the time domain.

Claim 25 (Previously presented). The method according to claim 24, further comprising selecting dirac-like sample correction signals having time-displaced variants with substantially similar aliasing for reducing the crest factor.